22. (2.25 points)

Given the following information:

| Accident | Cumulative Paid Claims ($) as of (months) | | | | |
|---|---|---|---|---|---|
| Year | 12 | 24 | 36 | 48 | 60 |
| 2011 | 10,000 | 20,000 | 25,000 | 27,000 | 27,000 |
| 2012 | 10,000 | 20,000 | 25,000 | 27,000 | |
| 2013 | 10,000 | 20,000 | 25,000 | | |
| 2014 | 10,000 | 20,000 | | | |
| 2015 | 10,000 | | | | |

| Accident | Cumulative Paid ALAE ($) as of (months) | | | | |
|---|---|---|---|---|---|
| Year | 12 | 24 | 36 | 48 | 60 |
| 2011 | 500 | 1,500 | 2,250 | 2,700 | 2,700 |
| 2012 | 500 | 1,500 | 2,250 | 2,475 | |
| 2013 | 500 | 1,500 | 1,875 | | |
| 2014 | 500 | 1,000 | | | |
| 2015 | 250 | | | | |

| Accident | Paid Claims Development Factors | | | |
|---|---|---|---|---|
| Year | 12-24 | 24-36 | 36-48 | 48-60 |
| 2011 | 2.00 | 1.25 | 1.08 | 1.00 |
| 2012 | 2.00 | 1.25 | 1.08 | |
| 2013 | 2.00 | 1.25 | | |
| 2014 | 2.00 | | | |

| Accident | Paid ALAE Development Factors | | | |
|---|---|---|---|---|
| Year | 12-24 | 24-36 | 36-48 | 48-60 |
| 2011 | 3.00 | 1.50 | 1.20 | 1.00 |
| 2012 | 3.00 | 1.50 | 1.10 | |
| 2013 | 3.00 | 1.25 | | |
| 2014 | 2.00 | | | |

| Calendar Year | Earned Premium ($) | Paid Claims ($) | Paid ALAE ($) | Paid ULAE ($) |
|---|---|---|---|---|
| 2011 | 50,000 | 27,000 | 2,700 | 3,240 |
| 2012 | 50,000 | 27,000 | 2,700 | 3,240 |
| 2013 | 50,000 | 27,000 | 2,700 | 3,240 |
| 2014 | 50,000 | 27,000 | 2,700 | 3,240 |
| 2015 | 50,000 | 27,000 | 1,350 | 4,212 |

- Prior to 2015, the insurer operated in a steady state environment. Data prior to accident year 2011 exists but is not shown above.
- Claims and ALAE trend = 0%.
- Total case outstanding as of December 31, 2015 = $21,000.
- Total IBNR as of December 31, 2015 = $5,000.
- In 2015, the insurer began to use its own legal department on more claims in an effort to reduce legal expenses.
- Legal department salaries are not allocated to specific claims and thus are recorded as ULAE.
- The legal fees from outside attorneys are billed to specific claims and recorded as ALAE.
- The change in attorney expenses resulted in a 50% decline in ALAE and a 30% increase in ULAE; the new expense ratios are expected to persist through future calendar years.

<QUESTION 22 CONTINUED ON NEXT PAGE>

22. (continued)

a. (1 point)

Estimate the total unpaid ALAE as of December 31, 2015 for all accident years.

b. (0.5 point)

Estimate the total unpaid ULAE as of December 31, 2015 using the classical technique.

c. (0.75 point)

Assume that prior to the change in 2015, half of ULAE was sustained when claims were reported. Fully assess the reasonableness of the estimate provided in part b. above.

CONTINUED ON NEXT PAGE

| **QUESTION 22** | |
|---|---|
| **TOTAL POINT VALUE: 2.25** | **LEARNING OBJECTIVE(S): B5, B7** |

**SAMPLE ANSWERS**

**Part a:** 1 point

*Sample 1*

Selected ALAE LDF's based on steady state
Select Expected ALAE = 2,700 / 2 = 1,350
Perform BF on ALAE, this will precisely reflect the change

| | 12-24 | 24-36 | 36-48 | 48-60 |
|---|---|---|---|---|
| Incr | 3.00 | 1.50 | 1.20 | 1.00 |
| Cum | 5.40 | 1.80 | 1.20 | 1.00 |

Unpaid ALAE
2011 = 0
2012 = 0
2013 = (1 – 1 / 1.2) x 1,350 = 225
2014 = (1 – 1 / 1.8) x 1,350 = 600
2015 = (1 – 1 / 5.4) x 1,350 = 1,100
Total = 1,925

*Sample 2*

Assuming historical payments are consistent but future payments -50%
2012: 0
2013: 225
2014: 225 + 375 = 600
2015: 225 + 375 + 500 = 1,100
Total = 1,925

*Sample 3*

Adjust paid alae to pre-change levels (adding in 50% on amount of most recent incremental payment). Use historical factors, then adjust ultimate for the change.
2011 and 2012 are @ ult
2013: (1,875 + 375) x 1.2 = 2,700
2014: (1,000 + 500) x 1.5 x 1.2 = 2,700
2015: (250 + 250) x 3.0 x 1.5 x 1.2 = 2,700

2013: (2,700 – 2,250) / 2 = 225
2014: (2,700 – 1,500) / 2 = 600
2015: (2,700 – 1,500) / 2 = 1,110
Total = 1,925

**Part b:** 0.5 point

*Sample 1*

Ratio of Paid ULAE to Paid Claims
2011 0.120

| | |
|---|---|
| 2012 | 0.120 |
| 2013 | 0.120 |
| 2014 | 0.120 = 3,240 / 27,000 |
| 2015 | 0.156 = 4,212 / 27,000 |

Select 0.156 since this reflects the change
Unpaid ULAE = 0.156 (0.5 x 21,000 + 5,000) = 2,418

*Sample 2*
Ratio of Paid ULAE to Paid Claims & ALAE

| | |
|---|---|
| 2011 | 0.109 |
| 2012 | 0.109 |
| 2013 | 0.109 |
| 2014 | 0.109 = 3,240 / (27,000 + 2,700) |
| 2015 | 0.149 = 4,212 / (27,000 + 2,700) |

Select 0.149 since this reflects the change
Unpaid ULAE = 0.149 (0.5 x 21,000 + 5,000) = 2,303

*Sample 3*
Restate historical ULAE to be 30% higher

| Year | ULAE | ULAE Ratio |
|---|---|---|
| 2011 | 4,214 (= 3,240 x 1.3) | 0.156 (=4,214 / 27,000) |
| 2012 | 4,214 | 0.156 |
| 2013 | 4,214 | 0.156 |
| 2014 | 4,214 | 0.156 |
| 2015 | 4,214 | 0.156 |

Unpaid ULAE = 0.156 x (0.5 x 21,000 + 5,000) = 2,418

**Part c:** 0.75 point

- The estimate above also assumes ULAE is sustained 50% open and 50% when closed. However since we change in 2015 to move later ALAE development to ULAE, the 50/50 assumption isn't reasonable going forward. Therefore our estimate of 2,418 unpaid ULAE is too low.
- Prior to change, the classical method seems reasonable, but the 30% increase with the change will occur on the use of the legal department which occurs through the life of the claim. The 50% of ULAE at the beginning of the claim assumption of the classical will not be reasonable. The estimate in b is biased and more weight should be on the case O/S, so the estimate of unpaid is understated

**EXAMINER'S REPORT**

This question required candidates to estimate ALAE and ULAE in a changing expense environment, and assess the reasonability of the resulting estimates.

This question was very challenging. Candidates scored poorly on this question, with many choosing not to attempt the question.

**Part a**

Candidates were expected to recognize the change in development pattern is due to the change in the handling of legal expenses and then determine the unpaid ALAE using an approach that properly adjusts for the change going forward.

Common mistakes included:

- Pursuing an approach that does not properly adjust for the change. The two most common inappropriate approaches were applying the development technique using an all year average of the LDFs or using solely the most recent diagonal.
    - Using an all year average LDF is not appropriate as it ignores the change in ALAE going forward.
    - Using only the latest diagonal is not appropriate as it fails to distinguish the difference between a calendar year change and an accident year impact. For example, the development technique relates unpaid ALAE to paid ALAE, however in this example the unpaid ALAE will be under the new claims process while the cumulative paid ALAE is a blend of the old process and the new process (other than AY 2015). This results in LDFs that are biased low as the denominator is overstated due to it including ALAE from the old process. This is evident when looking at the 2015 ultimate ALAE from the development technique using only the latest diagonal of LDF's; the ultimate is much lower than 50% of prior years before the change.
    - A proper approach is one that does not relate unpaid ALAE to paid ALAE. Examples of this include BF methods (where unpaid is independent of paid to date), or incremental paid ALAE. With these approaches, the actuary simply needs to adjust the expected future amounts by 50% relative to historical amounts. Using ratios of paid ALAE to paid loss are also appropriate in these approaches.
- Using calendar year ALAE and multiplying those amounts by accident year development factors
- Only adjusting accident year 2015 for the change (failing to recognize the calendar year impact on all accident years)
- Calculating unpaid ALAE for accident year 2015 only

**Part b**

Candidates were expected to use the classical technique for unpaid ULAE and select a ULAE ratio that reflects the new change going forward.

Common mistakes included:

- Selecting a ULAE to Loss ratio that averaged multiple years, which fails to properly adjust for the change going forward
- Failing to apply the ratio to only half of the case reserves
- Applying the ratio to half of the IBNR

**Part c**

Candidates were expected to recognize that the change in process would result in more ULAE being recognized after the claim is reported. This can be reasoned from the source of the additional ULAE (legal expenses) or from the development factors given (paid ALAE factors are higher than paid loss factors and some of the ALAE is shifted to ULAE). Given that prior to the change, the 50/50 assumption held, this means that the 50/50 will no longer hold and more ULAE will occur after the claim has been reported. Therefore, the estimate in part b., which uses the

50/50 assumption, will not be reasonable. It is understated because more than 50% of the ratio should be applied to case reserves when calculating unpaid ULAE.

Common mistakes included:

- Simply stating that the 50/50 assumption was a key part of the classical technique, and thus the answer was reasonable. This failed to recognize that part b. assumed that the 50/50 assumption was valid prior to the change, but that the reserve estimate in part b. is calculating future ULAE amounts after the change.
- Stating that the estimate in part b. wasn't reasonable and that the Kittel method would improve it. This is incorrect as the Kittel method does not properly adjust for this situation. The Kittel method adjusts the ratio of paid ULAE to paid loss by incorporating reported losses in the calculation (in addition to paid losses). In this example, the insurer had perfectly stable loss development. Therefore, paid losses will equal incurred losses, and the ULAE to loss ratio would be the same for both techniques. The part of the classical technique that needs to be adjusted in this scenario is the percent of ULAE paid when claims are reported. The Kittel and classical techniques both share the same assumption regarding the percentage of ULAE paid when claims are reported, so the Kittel method does not appropriately adjust for the change.